



EH Resident Competency 2.6

Competency 2.6 EH Residents shall demonstrate a familiarity level knowledge of the requirements for hazardous and mixed waste management in Department of Energy (DOE) Order 5820.2A, *Radioactive Waste Management*.

1. SUPPORTING KNOWLEDGE AND/OR SKILLS

- a. Discuss the purpose and scope of DOE Order 5820.2A, *Radioactive Waste Management*.
- b. Discuss the applicability and impact of DOE Order 5820.2A, *Radioactive Waste Management*, on the EH oversight program.
- c. Describe the authorities and responsibilities of the EH Resident with respect to DOE Order 5820.2A, *Radioactive Waste Management*.



2. SUMMARY

DOE EH residents should be familiar with DOE Order 5820.2A in order to provide management oversight to the DOE radioactive waste management program and to ensure compliance with DOE environment, safety, and health (ES&H) requirements. The EH resident's responsibilities generally include verifying ES&H programs; maintaining onsite presence to observe ES&H practices in the workplace; and serving as the EH point of contact, the EH resident duty officer, and subject matter/technical expert for site-related activities as assigned.

The following chart provides a summary DOE Order 5820.2A.

DOE Order 5820.2A, Radioactive Waste Management	
Purpose	Establishes policies, guidelines, and minimum requirements by which DOE manages its radioactive and mixed waste and contaminated facilities.
Scope	Applies to all DOE elements, and, as required, all DOE contractors and subcontractors performing work that involves management of radioactive waste and/or radioactively contaminated facilities for DOE.
Requirements/ Key Words	<p><u>Chapter I, High-Level Waste (HLW)</u></p> <ul style="list-style-type: none"> Establishes policies and guidelines for managing HLW; subject to Atomic Energy Act (AEA) and the Resource Conservation and Recovery Act (RCRA). All HLW generated by DOE operations shall be safely stored, treated, and disposed of according to DOE Order 5820.2A. Storage operations shall comply with Environmental Protection Agency (EPA) standards and EPA/state regulations. Geologic disposal shall comply with both Nuclear Regulatory Commission (NRC) regulations and EPA standards. Requirements <ul style="list-style-type: none"> Design requirements for new facilities and design review for existing facilities Storage operations for doubly contained systems - waste characterization; storage and transfer operations; monitoring, surveillance, and leak detection; contingency action; training; quality assurance; and waste treatment and minimization Storage operations for singly contained tank systems - waste characterization; storage and transfer operations; monitoring, surveillance, and leak detection; contingency action; training; and quality assurance Disposal of new and readily retrievable existing HLW and other waste <p><u>Chapter II, Management of Transuranic (TRU) Waste</u></p> <ul style="list-style-type: none"> Establishes policies and guidelines for managing DOE TRU Waste starting with its generation, continuing through closure of the Waste Isolation Pilot Plant (WIPP), and finally ending with the management of buried TRU waste. TRU wastes that are also mixed wastes are subject to AEA and RCRA requirements. Buried TRU wastes are subject to the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Superfund Amendments and Reauthorization Act (SARA).



DOE Order 5820.2A, <i>Radioactive Waste Management</i> (cont.)	
Requirements/ Key Words(cont.)	<ul style="list-style-type: none"> • TRU waste shall be managed to protect the public, worker health and safety, and the environment; and management shall be performed in compliance with radiation protection and environmental standards. • Requirements <ul style="list-style-type: none"> - Waste classification - TRU waste generation and treatment - TRU waste certification and packaging - Temporary storage at generating sites - Transportation/shipping to the WIPP - Interim storage designation and new interim storage-facility requirements - WIPP - Buried TRU-contaminated waste - Quality assurance <p><u>Chapter III, Management of Low-Level Waste (LLW)</u></p> <ul style="list-style-type: none"> • Establishes policies, requirements, and guidelines for managing DOE's solid LLW. • LLW operations shall be managed to protect the health and safety of the public--using waste-generation reduction, segregation, treatment, and disposal practices to maximize cost-effectiveness. LLW will be disposed of on the site of generation if possible or at another DOE disposal facility, and mixed waste will conform to appropriate orders and regulations. • Requirements <ul style="list-style-type: none"> - Performance objectives to protect public health and safety and the environment - Performance assessment to demonstrate compliance with stated objectives - Waste generation requirements to reduce the volume of waste and/or amount of radioactivity requiring disposal - Waste characterization to permit proper segregation, treatment, storage, and disposal - Waste-acceptance criteria - Waste treatment, shipment, long-term storage - Disposal, disposal site selection, disposal facility and disposal site design - Disposal facility operations, site closure/post-closure - Environmental monitoring, quality assurance, and records and reports <p><u>Chapter IV, Management of Waste Containing Naturally Occurring and Accelerator-Produced Radioactive Material (AEA 11e(2) By-product Materials)</u></p> <ul style="list-style-type: none"> • Establishes policies and guidelines for managing DOE waste containing by-product material, as defined by section 11e(2) of the AEA of 1954, as amended, and naturally occurring and accelerator-produced radioactive material. • DOE wastes of this category shall be stored, stabilized in place, and/or disposed of consistent with 40 CFR 192 guidelines. Small volumes of DOE waste containing 11e(2) by-product material may be managed as low-level waste in accordance with Chapter III of this Order. (If mixed waste, management must also comply with RCRA.) • Requirements for waste management and quality assurance.



DOE Order 5820.2A, <i>Radioactive Waste Management</i> (cont.)	
Requirements/ Key Words (cont.)	<u>Chapter V. Decommissioning of Radioactively Contaminated Facilities</u> <ul style="list-style-type: none"> Establishes policies and guidelines for the management, decontamination, and decommissioning of radioactively contaminated facilities under DOE ownership and control. Radioactively contaminated DOE facilities shall be managed in a safe, cost-effective manner to ensure that release of and exposure to radioactivity and other hazardous materials comply with Federal and state standards. Facilities, equipment, and valuable materials shall be recovered and reused when practical. Requirements <ul style="list-style-type: none"> General program development and documentation Facility design Postoperational activities include potential for reuse and recovery of materials and equipment based on maintaining employee and public health and safety, environmental protection, and compliance with Federal and other requirements Decommissioning project activities include facility characterization, environmental review processes, engineering planning, operations, and post decommissioning activities Quality assurance requirements include compliance with national consensus standards such as the American National Standards Institute (ANSI) and the American Society of Mechanical Engineers (ASME)
	<u>Chapter VI. Waste Management Plan Outline</u> <ul style="list-style-type: none"> Provides guidance on the development and maintenance of a waste management plan for each site that generates, treats, stores, or disposes of DOE waste. Discussion - The primary purpose of the waste management plan is to compile and consolidate an annual report on how waste management operations are conducted, what facilities are being used to manage wastes, what forces are acting to change current waste management systems, and what plans are in store for the coming fiscal year. <p>Format for waste management plans</p> <ul style="list-style-type: none"> Executive summary General site information such as organization and site description Radioactive and mixed waste management operations, systems, facilities, waste characteristics, problems, recommendations, and future direction of the site operations Hazardous waste management (DP facilities) Schedule and cost summary Environmental monitoring programs Related subjects <p>Attachments</p> <ul style="list-style-type: none"> References Definitions



3. SELF-STUDY SCENARIOS/ACTIVITIES AND SOLUTIONS

Activity 1

In order to increase your familiarity with DOE Order 5820.2A, Activity 1 requires that you review DOE Order 5820.2A to find the location of answers to the following questions. List your findings on the chart below.

Questions	Answer Location in DOE 5820.2A
Example: What are the responsibilities of Assistant Secretary for Environment, Safety and Health (EH-1)?	Section 8.e.
1. What is LLW?	
2. What are the objectives of the DOE LLW program?	
3. What principal waste management documentation is required?	
4. What is required in a waste management plan?	
5. What is DOE's policy on HLW?	
6. What are the evaluation requirements for HLW that is not retrievable?	
7. When should material suspected of being contaminated with TRU radionuclides be evaluated?	
8. Who is responsible for certifiability of the waste form, waste package content, and proper marking, labeling, and placarding of a shipment from an interim storage site to WIPP?	
9. Where are large quantities of LLW (by-product) allowed to be disposed of?	
10. What federal regulations govern decommissioning project activities?	
11. Where is waste minimization addressed for DOE LLW generators? (three Sections)	
12. What documentation must be prepared after decommissioning operations are completed?	



Activity 2

Now that you are familiar with DOE Order 5820.2A, think about your responsibilities in regard to this Order. List below the specific section number and titles that specifically pertain to your job. Read those sections carefully.

Job-Related Sections:

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Activity 1, Solution

Questions	Answer Location in DOE 5820.2A
Example: What are the responsibilities of Assistant Secretary for Environment, Safety and Health (EH-1)?	Section 8.e.
1. What is LLW?	Attachment 2, Page 3, #20 (Definitions)
2. What are the objectives of the DOE LLW program?	Chapter III-1, Section 3.a. (Performance Objectives)
3. What principal waste management documentation is required?	Attachment VI-1, Page 5
4. What is required in a waste management plan?	Chapter VI (Waste Management Plan Outline)
5. What is DOE's policy on HLW?	Chapter I-1, Section 2. (Policy)
6. What are the evaluation requirements for HLW that is not retrievable?	Chapter I-8, Section 3.d.(2)
7. When should material suspected of being contaminated with TRU radionuclides be evaluated?	Chapter II-1, Section 3.a.(1)
8. Who is responsible for certifiability of the waste form, waste package content, and proper marking, labeling, and placarding of a shipment from an interim storage site to WIPP?	Chapter II-8, Section 3.g.(7)(c)
9. Where are large quantities of LLW (by-product) allowed to be disposed of?	Chapter IV-1, Section 3.a.(1) and (2)
10. What federal regulations govern decommissioning project activities?	Chapter V-3, Section 3.d.(1), (2), and (3)
11. Where is waste minimization addressed for DOE LLW generators? (three Sections)	Chapter III-1, Section 2.b. Chapter III-2, Section 3.b.(2) Chapter III-2-3, Section 3.c.(1), (2), and (4)
12. What documentation must be prepared after decommissioning operations are completed?	Chapter V-5, Section 3.d.(5)(a) and (b)

Activity 2, Solution

Answers will be specific to each individual based on his/her site and responsibilities.



4. SUGGESTED ADDITIONAL READINGS AND/OR COURSES

Readings

- Federal regulations pertaining to specific site and job responsibilities.